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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/770,725	01/26/2001	Li Yang	791_130	6015
25191	7590	08/16/2004	EXAMINER	
BURR & BROWN PO BOX 7068 SYRACUSE, NY 13261-7068			CREPEAU, JONATHAN	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 08/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/770,725

Applicant(s)

YANG ET AL.

Examiner

Jonathan S. Crepeau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office action is responsive to the Appeal Brief filed on June 7, 2004 and addresses claims 1-17. Prosecution is hereby reopened and a new ground of rejection is applied to the claims. As such, this action is non-final.

### ***Claim Rejections - 35 USC § 103***

2. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takami et al (U.S. Patent 6,350,544) in view of Watanabe et al (U.S. Patent 6,083,644).

Regarding claims 1 and 17, Takami et al. is directed to a nonaqueous lithium secondary battery comprising a positive and negative electrode laminated through a separator (see abstract and Figure 1). Regarding claims 1, 3, 4, and 17, the positive electrode material is  $\text{LiMn}_2\text{O}_4$ , which has cubic spinel structure (see col. 4, line 49). Regarding claims 1, 5, 6, and 17, the negative electrode active material is a graphitized carbon fiber (see col. 7, line 40). Regarding claims 1, 2, and 17, the battery contains an electrolyte comprising lithium hexafluorophosphate (see col. 10, line 43).

Takami et al. do not expressly teach the water content of each electrode as recited in claims 1 and 17, or that the battery has a capacity of 2Ah or more, as recited in claims 8-11.

However, the latter limitation is not considered to distinguish over Takami because the claimed battery capacity merely represents the scaling of the absolute size of the battery of

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Takami. Such large battery sizes are known to be useful in specific applications, such as in electric vehicles. Generally, changes in size are not considered to patentably distinguish over a reference (MPEP §2144.04(IV)).

Furthermore, in column 14, lines 48-52, Watanabe et al. teach that a positive electrode mixture and a negative electrode mixture both have moisture contents of 50 ppm or less.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the disclosure of Watanabe et al. would motivate the artisan to use electrodes having a moisture content of less than 50 ppm in the battery of Takami et al. In column 14, line 49 et seq., Watanabe et al. teach that it is “preferred...from the point of cycle property” that the electrodes have such a low moisture content. Additionally, the combined moisture content of the electrodes would inherently be lower than 5,000 ppm in case of heating the electrodes at 25 to 200°C, and lower than 1,500 ppm in case of heating at 200°C to 300°C, as recited in claims 1 and 17.

Regarding claims 12-16, which recite that the battery is used in an electric automobile, these claims do not have to be accorded patentable weight because they recite an intended use and do not further limit the structure of the battery (MPEP §2114).

### ***Response to Arguments***

3. Applicant's arguments filed June 7, 2004 have been fully considered but they are not persuasive insofar as they relate to the present rejection. Regarding the Watanabe reference, Applicants assert that there is no indication that the moisture content feature of Watanabe would

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have any significance in batteries which do not employ positive and negative active materials disclosed in Watanabe. However, it is submitted that the presence of moisture in lithium secondary batteries is a known problem that is appreciated by the prior art. For example, Kurose et al (U.S. Patent 6,361,822) discloses at column 2, line 14 that “[u]se of an active material in a state with a lot of absorbed moisture in battery causes problems such as decrease in a charge/discharge capacity of the battery, increase in internal resistance, and deterioration of the preservation property.” As such, it is believed that the artisan would understand that the disclosure of Watanabe would be relevant to all lithium secondary batteries, including that of Takami.

### *Conclusion*

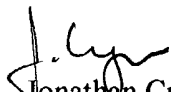
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached at (571) 272-1414. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Crepeau  
Patent Examiner  
Art Unit 1746  
August 12, 2004